

Technical Reviewers' Rating Summary

Proposal Number	G-40-04
Application Title	Bakken Production Optimization Program - 2.0
Submitted By	EERC
Request For	\$6,000,000.00
Total Project Costs	\$13,280,000.00

Section A. Scoring

Statement	Weight	G-40-04A	G-40-04B	G-40-04C	Avg. Score
1. Objectives	9	4	3	5	36
2. Achievability	7	4	2	5	25
3. Methodology	8	4	4	3	29
4. Contribution	8	5	4	5	37
5. Awareness / Background	5	5	5	4	23
6. Project Management	3	3	4	4	11
7. Equipment / Facilities	2	3	3	4	6
8. Value / Industry - Budget	4	4	3	4	14
9. Financial Match - Budget	4	4	3	4	14
Avg. Weighted Score		208	172	216	198
OVERALL					
FUND		X	X	X	
TO BE CONSIDERED					
DO NOT FUND					

Section B. Ratings and Comments

1. The objectives or goals of the proposed project with respect to clarity and consistency with North Dakota Industrial Commission/Oil and Gas Research Council goals are:

“The list in the Goals & Objectives session is very clear and consistent with NDIC goals: flaring task force support, fugitive emissions, reservoir drainage & production efficiency, waste management, water management, salt water disposal capacity modeling, stormwater management practices, high value minerals in produced fluid, spill remediation, Bakken data analysis, and emerging issues. This is a dazzling array of issues which are all important!”

- Reviewer: G-40-04A

- Rating: 4 (Very Clear)

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- Applicant

“The goal is a continuation of the successful and completed BPOP project. While this is clear, the exact final product of BPOP 2.0 is less clear. While some BPOP 2.0 goals are clearly defined, either continuations of ongoing research started in BPOP, or entirely new projects, the full scope is expected to morph as industry needs change over the planned three year life of BPOP 2.0.”

- Reviewer: G-40-04B

- Rating: 3 (Clear)

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- Applicant

“outcomes of project will greatly benefit the State of ND with increase tax revenues and improved recoveries in the Bakken formation”

- Reviewer: G-40-04C

- Rating: 5 (Exceptionally Clear)

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- Applicant

2. With the approach suggested and time and budget available, the objectives are:

“The success of the past three years would indicate there is no reason this second phase approach will not be successful. EERC has a lot of experience in project management.”

- Reviewer: G-40-04A

- Rating: 4 (Most Likely Achievable)

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- Applicant

“The objectives are achievable in the caveat that the project components are not all rigidly defined, or currently listed. New goals added late in the project, as an adjustment to industry needs, have the very real possibility of not being completed during the time allotted for BPOP 2.0, requiring an additional project in the future.”

- Reviewer: G-40-04B

- Rating: 2 (Possibly Achievable)

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- Applicant

“objectives are achievable, industry needs to remain committed and participate as they did in Phase I”

- Reviewer: G-40-04C

- Rating: 5 (Certainly Achievable)

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- Applicant

3. The quality of the methodology displayed in the proposal is:

“The methodology established for the first part of this project will be used and has been very successful. It is organized along multiple technical topic areas as priorities dictated from the industry or the State under one program support area. This should continue to be successful.”

- Reviewer: G-40-04A

- Rating: 4 (Above Average)

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- Applicant

“The EERC has a history of designing and implementing projects in a manner that produces meaningful and useful results. Their experiments are well constructed and data gathering sufficient to produce verifiable and repeatable results.”

- Reviewer: G-40-04B

- Rating: 4 (Above Average)

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- Applicant

“some of the methodology is generic in nature due to anticipation of more regulations being proposed for the oil and gas industry”

- Reviewer: G-40-04C

- Rating: 3 (Average)

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- Applicant

4. The scientific and/or technical contribution of the proposed work to specifically address North Dakota Industrial Commission/Oil and Gas Research Council goals will likely be:

“The work that was done in the first phase of this project as well as what is projected for the second phase is impressive. It addresses many pressing issues and has been able to flex and address some issues that developed while it was in-progress. The issues are relevant to NDIC goals as well as industry goals and also goals of the general public.”

- Reviewer: G-40-04A

- Rating: 5 (Extremely Significant)

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- Applicant

“The 11 specific sub-projects are vital concerns of the oil and gas industry in North Dakota and any results are likely to have a positive impact on production and efficiency. Even if all the projects are not completed to the satisfaction of the researchers, within the time scope of BPOP 2.0, the continuous release of intermediate results, through the ND OGRP, can allow real-time implementation of relevant new information.”

- Reviewer: G-40-04B

- Rating: 4 (Very Significant)

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- Applicant

“Bakken/Three Forks is a very complex reservoir and the learning curve, even after 10+ years, is still in need of significant technical resources”

- Reviewer: G-40-04C

- Rating: 5 (Extremely Significant)

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- Applicant

5. The background of the principal investigator and the awareness of current research activity and published literature as evidenced by literature referenced and its interpretation and by the reference to unpublished research related to the proposal is:

“The PI and co-PI's have tremendous backgrounds and are fully qualified to carry on this project as demonstrated by the success of the first three years.”

- Reviewer: G-40-04A

- Rating: 5 (Exceptional)

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- Applicant

“The principal investigator and all listed researchers have exemplary work history and experience. The depth and span of their skills and knowledge sets allow significant interdisciplinary analysis of the experiment results from multiple scientific and engineering perspectives. Most obvious benefit is the researchers knowledge of the original BPOP project.”

- Reviewer: G-40-04B

- Rating: 5 (Exceptional)

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- Applicant

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- Reviewer: G-40-04C

- Rating: 4 (Better Than Average)

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- Applicant

6. The project management plan, including a well-defined milestone chart, schedule, financial plan, and plan for communications among the investigators and subcontractors, if any, is:

“The timetable is shown in the budget section as well as a breakdown of the expenses. Quarterly reports will be issued two weeks after the end of each quarter to provide timely highlights as well as a minimum of annual meetings to discuss activities and future direction.”

- Reviewer: G-40-04A

- Rating: 3 (Adequate)

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- Applicant

“There is a detailed timetable and budget provided, including a detailed budget breakdown of the in-kind contribution provided by the project partner Marathon. While other BPOP partners are indicated to support the continuation of the project, as part of the new BPOP 2.0, there currently is no monetary backing from any other partners listed in the budget to further support their position.”

- Reviewer: G-40-04B

- Rating: 4 (Very Good)

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- Applicant

“As long as the communication of the Phase II project is carried out equal to the Phase I project, industry and stakeholders were kept well informed”

- Reviewer: G-40-04C

- Rating: 4 (Very Good)

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- Applicant

7. The proposed purchase of equipment and the facilities available is:

“The facilities to be used are already in use at EERC and are well developed as well as have qualified personnel. Marathon is well qualified to drill the test well in coordination with the facilities and personnel involved.”

- Reviewer: G-40-04A

- Rating: 3 (Justified)

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- Applicant

“Minimal equipment or material purchases appear to be required by the EERC researchers. Marathon will obviously purchase substantial amounts of material and equipment as part of the drilling, completion, and production of their producing well provided as part of their in-kind contribution to the BPOP 2.0 project.”

- Reviewer: G-40-04B

- Rating: 3 (Justified)

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- Applicant

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- Reviewer: G-40-04C

- Rating: 4 (Well Justified)

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- Applicant

8. The proposed budget “value”¹ relative to the outlined work and the commitment from other sources is of:

“The numerous amounts of information obtained, which applies across the entire Bakken, is truly impressive. This project is addressing multiple issues with the ability to flex and tackle 'current event' issues that arise during its timeframe. I don't know that you can categorize the amount of return that will be generated from the money spent and its value to the Industry, State, General Public, & Academia!”

- Reviewer: G-40-04A

- Rating: 4 (High Value)

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- Applicant

“The value is reasonable, but difficult to compare to other sources of the same research, as this scale of research would rarely be seen outside of the oil and gas industry in a publicly available format. The total well cost estimate is higher than would seem typical and likely contains costs for deliverables provided to the BPOP 2.0 project that wouldn't normally be available in the typical well or made available to the public.”

- Reviewer: G-40-04B

- Rating: 3 (Average Value)

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- Applicant

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- Reviewer: G-40-04C

- Rating: 4 (High Value)

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- Applicant

9. The “financial commitment”² from other sources in terms of “match funding” have been identified:
“Marathon's matching or in-kind funds of \$7.28-million (or 54.8% of the entire project) to drill a new well, complete it, collect core & fluid samples, and allow integrated field & lab characterization approached is a huge plus to the project. The data will be able to be used by all involved!”

- *Reviewer: G-40-04A*

- *Rating: 4 (High Value)*

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- *Applicant*

“The value of matching funding exceeds the 50% minimum required by the ND OGRP guidelines, but only because the in-kind contribution from Marathon is so high. If those costs prove to be excessively high, it is possible the matching funds would effectively become insufficient to support the 50% minimum by the end of the three year program, necessitating a reduction of the later ND OGRP support payments. It would be nice to see more capital support from the current BPOP partners to minimize this risk.”

- *Reviewer: G-40-04B*

- *Rating: 3 (Average Value)*

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- *Applicant*

“Industry is again participating a significant amount of money to this work”

- *Reviewer: G-40-04C*

- *Rating: 4 (High Value)*

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- *Applicant*

General Comments

“\$6-million is a large request, but I would allocate as many funds as possible to this project. The wide variety of important issues it addresses is truly impressive. The Executive Summary included in the request for the work already performed is significant to all the parties involved. The partnership of those involved in this project to obtain results useful across the board in the Bakken is unique.”

- Reviewer: G-40-04A

“The program has the primary benefit of providing a continuation of proven successful research from BPOP.

The weakness is the less concrete goals of the program that might mean an additional future project request is needed to complete.”

- Reviewer: G-40-04B

“Recommend approval. One area to consider for review to stay ahead of potential problems is mechanical integrity programs/testing of surface facilities. This play is + 10 years in a very corrosive environment and some companies have good programs, some do not and those that do not should be educated on the importance of staying ahead of problems.

More work is needed on refracs- a significant amount of reserves can be produced from existing wellbore for everyone's benefit. Well failures is another area in a low commodity price environment that needs attention to reduce cost, much has been done but more work is needed”

- Reviewer: G-40-04C

1 “value” – The value of the projected work and technical outcome for the budgeted amount of the project, based on your estimate of what the work might cost in research settings with which you are familiar. A commitment of support from industry partners equates to a higher value.

2 “financial commitment” from other sources – A minimum of 50% of the total project must come from other sources to meet the program guidelines. Support less than 50% from Industrial Commission sources should be evaluated as favorable to the application; industry partnerships equates to increased favorability.